UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TORSTEN HAGEN, FRIEDHELM KAMPER,
DANIEL KOCH and HEINZ-HERBERT MULLER

Appeal 2006-2775
Application 10/606,399
Technology Center 1700

Decided: September 28, 2006

Before GARRIS, WARREN, and JEFFREY T. SMITH, *Administrative Patent Judges*.

JEFFREY T. SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal the Examiner's final rejection of claims 1, 9 to 11, 19, and 20. Claims 8, 18, and 20 to 24 have been indicated as containing allowable subject matter (Br. 3). We have jurisdiction under 35 U.S.C. § 134.[1]

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[1] In rendering this decision, we have considered Appellants' position presented in the Briefs filed November 7, 2005 and March 27, 2006, and the Examiner's position presented in the Answer mailed January 30, 2006.

We AFFIRM.

BACKGROUND

Appellants' invention relates to a process for preparing polyamines of the diphenylmethane series. The process comprises reacting aniline and formaldehyde in the presence of an acid catalyst to form polyamines. The reaction product is neutralized with a base and phase separated with an alcohol forming an organic phase comprising polyamines of the diphenylmethane series and an aqueous phase. In an alternative embodiment the invention is directed to a process of preparing polyisocyanates of the diphenylmethane series. This process includes all the process steps identified above and phosgenating the polyamines from the organic phase into the corresponding polyisocyanate. Representative claims 1 and 11, as presented in the Brief, appear below:

1. A process for the preparation of polyamines of the diphenylmethane series, comprising

a) reacting aniline and formaldehyde in the presence of an acid catalyst to form polyamines,

b) neutralizing the reaction mixture with a base, and

c) phase separating the neutralized reaction mixture, thereby forming an organic phase comprising polyamines of the diphenylmethane series and an aqueous phase,

wherein the quantity of base in step b) exceeds 100% of the stoichiometrically required quantity for neutralization of the reaction mixture, and wherein at least one alcohol is added (1) at the beginning of step b), (2) during step b), or (3) after step b) and before step c), with the molar ratio of said alcohol to said formaldehyde being at least 0.02:1.

11. A process for the preparation of polyisocyanates of the diphenylmethane series comprising

a) reacting aniline and formaldehyde in the presence of an acid catalyst to form polyamines,

b) neutralizing the reaction mixture with a base,

c) phase separating the neutralized reaction mixture, thereby forming an organic phase comprising polyamines of the diphenylmethane series and an aqueous phase,

and

d) phosgenating the resultant polyamines into the corresponding polyisocyanates,

wherein the quantity of base in step b) exceeds 100% of the stoichiometrically required quantity for neutralization of the reaction mixture, and wherein at least one alcohol is added (1) at the beginning of step b), (2) during step b), or (3) after step b) and before step c), with the molar ratio of said alcohol to said formaldehyde being at least 0.02:1.

CITATION OF REFERENCE

The Examiner relies on the following reference in rejecting the appealed claims:

Adkins	5,312,971	May 17, 1994

Claims 1, 9 to 11, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as obvious over Adkins (Answer 3-5).

OPINION[2]

The Examiner found that Atkins teaches a process for preparing polyisocyanates that renders obvious the subject matter of the independent

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[2] We select independent claims 1 and 11as representative of the appealed claims. We will also address the separately argued claims 10 and 20.

claims (Answer 3-4). Appellants acknowledge that Adkins, like the presently claimed invention, discloses the preparation of polyisocyanates of the diphenylmethane series (Br. 5). Appellants argue that the present invention requires the addition of an alcohol to the process of preparing the polyamides before the phase separation of step c) (Br. 5). Appellants argue that Adkins does not disclose or suggest adding an alcohol during the preparation of the polyamides (Br. 5).

Appellants' arguments are not persuasive. Adkins discloses that an alcohol is necessary to quench the mixture when using a highly reactive reducing agent. Suitable alcohols include methanol. See col. 2, ll. 21 to 29. Appellants acknowledge this disclosure on page 6 of the Brief. The Examiner has determined that Adkins suggests the addition of the methanol after neutralization and before phase separation (Answer 3-4). Appellants have not refuted the Examiner's position in the Briefs.

Appellants argue that Adkins does not disclose that methanol could be effective when it is added to the polyamines in reducing the color value of the resulting polyisocyanate (Br. 6). This argument is not persuasive because it is not limited to the scope of the claimed invention. That is, the invention disclosed by the independent claims, 1 and 11, do not exclude the use of reactive reducing agents in combination with methanol.[3]

[3] The independent claims employ the transitional phrase "comprising." This transitional phrase is entitled to its customary usage in claim interpretation, thus opening the claimed method to include unspecified additional steps and

Appellants' arguments about the results achieved in the Adkins examples have been considered. These arguments are not persuasive because, as stated above, the claimed invention does not exclude the use of methanol in combination with a reducing agent. Moreover, the results achieved in Adkins' examples do not detract from the statements appearing in column 2 of the reference that discloses the suitability of using methanol as a quench in the disclosed invention.

The Examiner asserts that the 2,6-di-tert-butyl-4-methylphenol disclosed by Adkins as a reducing agent would meet the requirement for at least one alcohol as specified in independent claims 1 and 11. It is the Examiner's position that a phenol is an alcohol (See Answer 5). Appellants argue that "[e]ven if one technically considers phenol to be an alcohol, its properties are quite different than the general properties of alcohols. It is submitted by Appellants, that this reference does **not** specifically disclose phenol. Rather, it discloses hindered phenols" (Br. 8).

We agree with the position presented by the Examiner. A review of the present specification does not limit the characteristics of the alcohol component. That is, the claimed invention is not limited to the general properties of alcohols as argued by Appellants. The Specification, page 6, provides a list of preferred alcohol components. This list discloses a preference for certain alcohol species; however, it does not expressly

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ingredients. *See, e.g., In re Baxter,* 656 F.2d 679, 686-87, 210 USPQ 795, 802-03 (CCPA 1981).

exclude the use of phenols. As such, Appellants' arguments are not persuasive.

Appellants' arguments regarding claims 10 and 20 have been fully considered. Claims 10 and 20 further define the independent claims, 1 and 11 respectively, by providing a list of suitable alcohol components. The list of suitable alcohol components includes methanol. As discussed above, methanol is disclosed by Adkins to be suitable for the disclosed process.

CONCLUSION

Based upon consideration of the present record, including all of Appellants' arguments presented in the Briefs, we determine that the Examiner has established a prima facie case of obviousness which has not been adequately rebutted by Appellants. Accordingly, we affirm the rejection of claims 1, 9 to 11, 19, and 20 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (2004).

AFFIRMED

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